regulator and kept constant.

32. The circuit arrangement as defined in claim 31, wherein said oscillators are embodied as as an oscillator bank in order to furnish a constant frequency difference between said pulse repetition frequency and said scanning frequency.

REMARKS

The above amendments are being submitted to place this application in better condition for examination.

Respectfully submitted,

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MARKED-UP COPY OF FIRST PARAGRAPH ON PAGE 1 OF SPECIFICATION

--The invention relates to a method[s] for increasing the interference resistance of a time domain reflectometer, in particular to high-frequency radiation, in which at a pulse repetition frequency a transmission pulse is generated and coupled into a waveguide, whose upper end toward the process terminal is disposed on a holder part. The invention also relates to a circuit arrangement for performing the method--.

MARKED-UP COPY OF SECOND PARAGRAPH ON PAGE 5 OF SPECIFICATION

--The object of the invention is to provide [disclose] a method for increasing the security against interference of time domain reflectometers, with which the operational accuracy of known time domain reflectometers, in particular with respect to high-frequency interference signals, can be improved simply and economically and that is meant to be usable universally.--

MARKED-UP COPY OF PAGE 11 OF SPECIFICATION

--The amount of interference is obtained from the deviations of the measured reflection profile from a reference profile determined beforehand under interference- free conditions. As the amount of interference, the difference between the maximum and minimum deviation of the reflection profile from a predetermined value or from the reference profile in a defined time or distance slot, such as the starting of ascertaining the profile until the onset of the transmission pulse, namely the range A in Fig. 3, can be used. The threshold at which, when it is exceeded, the scanning frequency is varied is obtained from the deviations from the reference profile that are still tolerable for assuring a given measurement accuracy.

If the scanning frequency has now been varied according to the invention, then from the newly determined amount of interference it is ascertained whether the variation in the scanning frequency was done in the correct direction, that is, has led to a reduction in the amount of interference compared to the first measurement. If so, the adaptation of the scanning frequency can be continued with the same trend, that is, a further increase or a further decrease, as long as the interference threshold has not already been undershot. If no improvement in the amount of interference has ensued, the adaptation of the scanning frequency can be done, beginning at the original scanning frequency, in the other direction from the first adaptation attempt. However, continuing in the same direction also leads to success, because of the infinite slot width. The assessment and adaptation of the scanning frequency can be done by a regulating circuit, for instance.

Brief Description of the Drawing[, in which:]--

MARKED-UP COPY OF PAGE 12 OF SPECIFICATION

--Fig. 1 is a block circuit diagram of a tdr fill level sensor with improved security against interference;

Fig. 2 shows the frequency conversion of an interference signal as a result of the scanning;

Fig. 3 shows a reference profile and a reflection profile with a superimposed interference signal;

Fig. 4 shows an arrangement for varying the pulse repetition frequency and for generating a scanning trigger signal; and

Figs. 5 and 6 show two arrangements for realizing a controlled delay circuit for generating a scanning trigger signal.

[Modes of Embodying the Invention:] Description of the Preferred Embodiments

In Fig. 1, the basic layout of a tdr fill level sensor with improved security against interference is shown schematically, as an example of an application of the invention. The key part of the sensor is a waveguide 4, whose upper end forms the process terminal 18 and for

instance is a retaining part 18; the waveguide 4 protrudes into a container 12 and dips partway into a medium 13 contained therein which forms a surface 14 and hence a boundary layer 14. A trigger generator 1 is used to generate a transmission trigger signal X_{TS} at the pulse repetition frequency f_{prf} and a scanning trigger signal X_{TA} at the scanning frequency f_A. The trigger generator 1 is controlled by a control unit 8. Examples of the detailed embodiment of the trigger generator 1 are shown in Figs. 4-6 and explained--